

DETAILED ACTION

Response to Amendment

1. This Office action is responsive to the amendment filed March 14, 2008. Claim 1 was amended. Claims 6 and 16-20 are indicated as canceled. Claims 1-5, 7-15, and 21-37 are pending. It is suggested the text be deleted in the canceled claims for clearer claim format. Claims 1-5 and 7-15 are now allowable as discussed below. Accordingly, previously withdrawn claims 21-37 are now under consideration. Polyaniline has been selected as the next species of conjugate polymer for consideration.
2. The rejection of claims 1-5, 7-15 and 20 under 35 U.S.C. 112, second paragraph, is withdrawn due to the amendment.
3. The rejection of claims 1-5, 7 and 13-15 under 35 U.S.C. 103(a) as obvious over Heuer et al. (US 6,368,731) in view of Andersson et al. in view of Lidberg et al. is withdrawn due to the amendment.
4. The rejection of claims 8-11 under 35 U.S.C. 103(a) as obvious over Heuer et al. (US 6,368,731) in view of Andersson et al. in further view of Lidberg et al. and in further view of Yang et al. (US 5,723,873) is withdrawn due to the amendment.
5. The rejection of claim 12 under 35 U.S.C. 103(a) as obvious over Heuer et al. in view of Andersson et al. in further view of Lidberg et al. and in further view of Ara is withdrawn due to the amendment.

Claim Objections

6. Claim 1 is objected to because of the following informalities:
 - a. In claim 1, the period should be removed after "(1)" just prior to the structural formula listed in the claim. A single claim can not comprise two sentences.
 - b. In claim 1, it is suggested "(In the formula," be changed to "wherein".

Appropriate correction is required.

Allowable Subject Matter

7. Claims 1-5 and 7-15 are allowed. (As noted above, there are some remaining minor informalities that should be corrected.) The prior art fails to teach or to render obvious the specific conjugate polymer of claim 1 for a light emitting device comprising the other required components.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 21-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita et al. (US 6,566,807) in view of Han (US 6,380,346). Fujita et al. discloses organic electroluminescent elements comprising an anode, cathode, light emitting layer and a layer comprising a hole transporting material and acceptor material between the light emitting layer and anode (see Figures and abstract). The layer between the light emitting layer and anode reads upon the instant "hole injecting layer". The layer comprises a high molecular compound such as

conjugate polymers as the hole transporting material (see col. 7, lines 24-44). Acceptor material for the layer includes cyano group containing compounds such as TCNQ per claim 26 (see col. 7, lines 47-59).

Fujita et al. does clearly teach the hole transporting material for the acceptor-doped layer between the anode and light emitting layer comprises conjugate polymer material, but is silent with respect to teaching specifically a polyaniline conjugate material comprising an electron-releasing substitution group. Secondary reference Han teaches polyanilines as conducting polymers for opto-electronic devices (see col. 1, lines 12-16). Han teaches various substituted anilines (see list, col. 18, line 61 to col. 19) and that substitution provides benefits such as high solubility and self-doping ability (see col. 2, lines 9-29). It would have been obvious to one of ordinary skill in the art at the time of the invention to have selected a polyaniline according to the teachings of Han as the conductive conjugate polymer for the Fujita et al. device, because one would expect the Han conjugate polymers to provide the benefits of a substituted conjugate polymer as a conductive polymer to the Fujita et al. device. With regard to claims 35 and 26, Han teaches anilines comprising alkoxy, trimethylsilyl, thioalkyl, and amino substitution groups (see col. 18, line 61 to col. 19, line 23). With regard to claim 37, Han teaches anilines having alkylthioaryl groups and aromatic substituted with dialkylamino groups among others (see col. 14, line 57 to col. 15, line 23). With regard to claim 32, Han teaches electrochemical oxidation of aniline as a form of polyaniline that may be prepared (see col. 22, lines 17-21).

With regard to claims 22-25, Fujita et al. teaches the hole transporting layer may be comprised of multilayers (see col. 9, lines 59-63). A two-layered hole transporting layer is considered to meet the limitations of a device having a "hole injecting layer" and a "hole

transporting layer". With regard to claim 24, an electron transporting layer is included in the device (see col. 9, lines 62). With regard to claim 25, the electron transporting layer may also be comprised of multilayers (see col. 9, lines 59-63). A two-layered electron transporting layer is considered to meet the limitations of a device having an "electron injecting layer" and an "electron transporting layer".

With regard to claims 27-30, Fujita et al. teaches an electron restraining layer (4) and a hole injecting restraining layer (6) that may be added to the device (see figures and corresponding descriptions, such as at col. 9, lines 60-61 and col. 10, lines 11-12). At least one of these "restraining" layers is considered to meet the limitation of a "blocking layer". The energy levels are specifically described, but it appears the function of restraining would be the same as blocking. It is noted that where the Patent Office has reason to believe that a functional limitation asserted to be critical for establishing novelty in the claimed subject matter may, in fact, be an inherent characteristic of the prior art, it possesses the authority to require the applicant to prove that the subject matter shown to be in the prior art does not possess the characteristics relied on (see *In re Swinehart*, 439 F.2d 210, 212-13, 169 USPQ 226, 229 (CCPA 1971)).

With regard to claim 31, Fujita et al. discloses Alq or Balq as the light emitting layer material (see Table 1, col. 19). Alq is a material that can emit light from an excitation triplet energy level as evidenced by Mishima et al. (US 2002/0096995 A1).

It is noted that claim 33 is a product-by-process type claims and the teachings of Fujita and Han are considered to meet the final product limitations.

With regard to claim 34, the EL device of Fujita et al. is disclosed for use in an EL display (see col. 1, lines 15-19).

Response to Arguments

10. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dawn Garrett whose telephone number is (571) 272-1523. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on (571) 272-1398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dawn Garrett/
Primary Examiner, Art Unit 1794

June 18, 2008